



LOWELL PUBLIC SCHOOLS
Henry J. Mroz Administration Office
155 Merrimack Street
Lowell, Massachusetts 01852

Abigail Anderson
Director of Research and
Accountability

Tel: (978) 674-2164
E-Mail: aanderson@lowell.k12.ma.us

To: Liam Skinner, Chief Schools Officer
From: Abigail Anderson
RE: UMass Lowell Research Program Proposal
Date: January 14, 2022

Fred Martin, an Associate Dean for Teaching, Learning, and Undergraduate Studies, Kennedy College of Sciences and a Professor of Computer Science at the University of Massachusetts Lowell, is working with Carolyn Rocheleau on offering an afterschool program at the Bartlett School to teach Artificial Intelligence and Machine Learning to approximately 15-20 7th and 8th graders. In the context of a six-week afterschool program for middle school students (grades 7 & 8), the study aims to demonstrate that students can understand applications of artificial intelligence, how machine learning algorithms operate, and ethical considerations regarding use of these tools. The study will also examine how the curriculum influences their interest in these technologies and in STEM careers.

Mr. Martin proposes that the duration of the project will begin in February 2022 and run approximately six weeks. Study participants will meet twice a week for the duration of their respective program. Over the twelve sessions, participants will be introduced to the importance of understanding data, data types, algorithm classification, supervised machine learning, algorithm bias, including ethics. As part of the study, research will be conducted by the project staff and UMass Lowell undergraduate research assistants. Additionally, a Lowell Public Schools teacher and a UMass Lowell undergraduate assistant will be available to help with classroom management and teaching and learning during the program. These two individuals will not be part of the research. 15 to 20 student participants will be recruited who are active Middle School students in grades 7-8 at Lowell Public Schools and who obtain parental consent. Survey data (pre and post) as well as interview data will be collected in addition to the assessment data that measures student learning.

This research will help to determine whether or not students' technical understanding and confidence increases in this material, encourage students to further pursue these ideas as part of their lives and as well inspire their future career, and that these changes will be consistent across some demographic indicators such as gender and race/ethnicity. The results of this research will be shared with Lowell Public Schools and the information gathered will be used to apply for additional grant submissions to support this program.

The work conforms with Policy LC. I recommend approval by the school committee.